

(19)



(11)

EP 3 988 356 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:

12.04.2023 Bulletin 2023/15

(51) International Patent Classification (IPC):

B60J 1/17 ^(2006.01)

(52) Cooperative Patent Classification (CPC):

B60J 1/17

(21) Application number: **20203087.0**

(22) Date of filing: **21.10.2020**

(54) **DEVICE FOR GUIDING A SLIDING GLASS OF A MOTOR-VEHICLE SIDE DOOR**

ANORDNUNG ZUR FÜHRUNG EINER VERSCHIEBBAREN SCHEIBE EINER KRAFTFAHRZEUGSEITENTÜR

DISPOSITIF POUR GUIDER UNE VITRE COULISSANTE D'UNE PORTE LATÉRALE DE VÉHICULE AUTOMOBILE

(84) Designated Contracting States:

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

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(43) Date of publication of application:

27.04.2022 Bulletin 2022/17

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Description

Field of the invention

[0001] The present invention relates to guiding devices for sliding glasses of motor-vehicle side doors, of the type comprising:

- a door structure, including a lower door structure and an upper frame defining a window opening,
- the upper door frame including a door upright which is to be adjacent to a central pillar (or "B" pillar) of the motor-vehicle,
- a sealing and guiding gasket guiding said sliding glass, secured to said door structure and having a portion extending along said door upright and inside the lower door structure,
- an aesthetic panel of plastic material, secured to said door upright, on an outer side thereof,
- a glass slidably mounted vertically within the door structure between a raised closed position in which it closes the window opening and a lowered position in which the glass is received within the lower door structure,
- wherein the glass has an inner surface carrying at least two spaced apart engagement elements, which are slidably engaged within said guiding and sealing gasket, in such a way that in the raised position of the glass, said glass has its outer surface that is flush with the outer surface of said aesthetic panel of plastic material.

Prior art

[0002] A device for guiding a sliding glass having all the above characteristics is known, for example, from document WO 2016 174315 A1. Known solutions of this type have the drawback of requiring relatively complex and difficult operations for assembling the glass on the door structure.

[0003] A device according to the preamble of claim 1 is known from WO 2018/109061 A1.

[0004] Document FR 3 035 034 A1 discloses a solution in which a glass run is provided in two separate parts, with an upper guiding part and a lower guiding part in order to create space to mount a window glass.

Object of the invention

[0005] The object of the present invention is to overcome the aforesaid drawback.

[0006] In particular, one object of the invention is to provide a device for guiding a sliding glass wherein the assembling operation of the glass within the door structure is considerably simplified.

[0007] An additional object of the invention is that of producing a guiding device that enables the quality of the

assembling operation to be improved, always ensuring that the glass is assembled in the correct position.

[0008] An additional object of the invention is to achieve the aforesaid objectives without making the structure of the motor-vehicle door more complex and expensive.

Summary of the invention

[0009] In view of achieving one or more of the aforesaid objects, the invention relates to a device for guiding a sliding glass of a motor-vehicle side door having all the characteristics of claim 1.

[0010] Also, in the case of a preferred embodiment, the aforesaid channel element of plastic material has a lower end with a stop surface, for engaging the lower end of the aforesaid lower gasket portion.

[0011] According to another characteristic of the present invention, the aforesaid at least two engagement elements carried by the inner surface of the glass are positioned and spaced apart from each other in such a way that each of them is either always engaged with said upper gasket portion, or is always in engagement with said lower gasket portion. In other words, neither of said engagement elements passes from the upper portion to the lower portion of the gasket, or vice versa, during the lowering and raising movements of the glass. This avoids any risk of an engagement element sticking against the upper end of the lower gasket portion, or against the lower end of the upper portion of the gasket during the movements of the glass.

Detailed description of a preferred embodiment

[0012] Further characteristics and advantages of the present invention will become apparent from the description that follows with reference to the attached drawings, provided purely by way of non-limiting example, wherein:

Figure 1 illustrates an example of a front side door of a motor-vehicle,

Figure 2 and Figure 3 are cross-sectional views according to the cross-section lines II-II and III-III of Figure 1, which show a preferred exemplary embodiment of the guiding device according to the invention,

Figure 4 is a view that shows only the various portions of the sealing and guiding gasket associated with the door of Figure 1,

Figure 5 is an additional view of the door, which shows the inner structure of the lower portion of the door,

Figure 6 is a perspective view on an enlarged scale of a channel element made of plastic material, which is arranged in the exemplary embodiment illustrated here to receive the lower portion of the sealing and guiding gasket that is associated with the rear vertical edge (with reference to the direction of travel) of

the glass of the door,

Figure 7 is a perspective view of the aforesaid lower portion of the sealing and guiding gasket portion that cooperates with the rear vertical edge of the glass,

Figure 8 shows the detail of the upper end of the gasket portion illustrated in Figure 7, in a perspective view and on an enlarged scale,

Figure 9 is a perspective view on an enlarged scale of the upper end of the plastic channel element of Figure 6, with the lower gasket portion mounted therein,

Figure 10 is an additional perspective view of the detail of Figure 9,

Figure 11 is yet another perspective view, according to a different direction, of the detail of Figures 9 and 10,

Figure 12 illustrates a perspective view on an enlarged scale of the lower end of the plastic channel element of Figure 6, with the lower sealing gasket portion mounted therein,

Figure 13 shows an example of an embodiment of a profiled strip glued to the inner surface of the glass and carrying two engagement elements, spaced apart from each other, which are to cooperate, respectively, with the upper portion and with the lower portion of the sealing and guiding gasket, along the rear vertical edge of the glass,

Figure 14 is a partial view of the door, showing the glass in its lowered position in order to make it clear that in this position the upper engagement element nevertheless remains engaged within the upper portion of the sealing and guiding gasket,

Figure 15 is a view corresponding to that of Figure 14, which shows the glass in its raised position, in order to make it clear that the lower engagement element carried by the inner surface of the glass nevertheless remains engaged within the lower portion of the sealing and guiding gasket.

Figure 16 is a view showing a step of the door assembling operation, wherein the channel element of plastic material illustrated in Figure 6, carrying therein the lower gasket portion that is illustrated in Figure 7, is assembled within the lower door frame,

Figure 17 shows a view corresponding to that of Figure 16 in the condition wherein the aforesaid channel element of plastic material, with the lower portion of the sealing gasket mounted therein, is in its final assembling position within the lower structure of the door,

Figure 18 shows a step of the door assembling operation, wherein the portions of the sealing and guiding gasket that are associated with the upper frame of the door have been assembled on this frame,

Figure 19 shows a step wherein the glass of the door is inserted into the lower structure of the door, and

Figure 20 is a perspective view of a detail showing the engagement of the rear vertical edge of the glass within the lower portion of the sealing and guiding

gasket, which is arranged within the aforesaid channel element of plastic material previously mounted within the lower structure of the door.

[0013] In the drawings, numeral 1 generally designates a front side door of a motor-vehicle, including a door structure 2. The door structure 2 comprises a lower door structure 3 and an upper frame 4 that defines a window opening 5. The upper frame 4 includes a front upright and a rear upright protruding upwards from the lower structure 3 of the door, and connected to each other by an upper element (in the example illustrated the front upright and the upper element of the frame 4 are defined by a single continuous curved element).

[0014] With reference also to Figure 2, the rear upright of the upper frame 4 of the window is intended to be adjacent to a central pillar, or "B" pillar, forming part of the body of the motor-vehicle (and not illustrated here).

[0015] Still with reference to Figure 2, the rear upright of the window frame 4, which is designated by reference number 6, is covered by an aesthetic panel of plastic material 7, which is hooked and/or glued to the sheet metal structure of the upright 6.

[0016] With reference, in particular, to Figure 2, in the example illustrated, in accordance with a conventional technique, the upright 6, as well as the entire structure of the door, is defined by two sheet metal elements 6A, 6B welded together and defining the inner side and the outer side of the upright 6, respectively. The aesthetic panel of plastic material 7 is provided with appendices 7A, 7B, for mounting on the upright 6.

[0017] In the drawings, reference G generally designates a window glass that is slidably mounted vertically in the door structure, between a raised position, in which it closes the window opening 5, and a lowered position, in which it is received inside the lower structure 3 of the door.

[0018] In accordance with a conventional technique, a sealing and guiding gasket is mounted on the door structure, serving both to guide the front edge and the rear edge of the glass G during the vertical sliding movement of the glass, and to ensure sealing at the front edge, rear edge and upper edge of the glass G in the raised condition of the glass G.

[0019] According to the invention, the portion of the aforesaid sealing and guiding gasket that cooperates with the rear edge of the glass (in the present description and in the following claims, the terms "front" and "rear" are used with reference to the advancing direction of the motor-vehicle), and which extends along the rear upright 6 of the frame 4 and inside the lower structure 3 of the door, consists of two separate gasket portions. An upper gasket portion, visible in Figures 2 and 4 and designated by reference 8, and a lower gasket portion designated in the drawings by reference 9. The upper gasket portion 8 extends along the upright 6 of the upper frame 4 of the door, and is secured within a space defined between the upright 6 of the door and the aesthetic panel of plastic

material 7. As can be seen in Figure 2, the upper gasket portion 8 is also hooked onto an aesthetic element of plastic material 10.

[0020] Referring again to Figure 2, the inner surface of the glass G carries (in the manner that will be described in detail below) a hook-shaped engagement element G1, which is slidably received within a groove 11 defined by a part of the upper portion 8 of the sealing gasket, which is mounted on an inner rib 12 of the aesthetic panel of plastic material 7.

[0021] According to a known technique, the arrangement of the engagement element G1 is such so that it keeps the glass G in a position in which the outer surface of the glass G is substantially flush with the outer surface of the aesthetic panel 7 of plastic material. The "flush" arrangement of the glass G is an aesthetic quality preferred by car designers.

[0022] During the vertical sliding of the glass G, the rear edge of the glass is, therefore, not guided directly into the upper portion 8 of the sealing gasket, but, through the engagement element G1, in order to obtain the aforesaid flush arrangement of the glass.

[0023] As can also be seen in Figure 2, again in accordance with the prior art, the upper portion 8 of the sealing gasket has deformable lips 13, which engage the inner surface and the rear edge of the glass G, to ensure sealing against atmospheric agents, as well as to improve the silence inside the passenger compartment of the motor-vehicle, avoiding rustling air. In Figure 2, the lips 13 are illustrated in their undeformed inoperative condition, but it is evident that these lips deform with respect to the position illustrated, following engagement with the glass G.

[0024] Figure 4 of the attached drawings shows the upper portion 8, and the lower portion 9, of the part of the sealing and guiding gasket that cooperates with the rear edge of the glass G. This Figure also shows the portions 14 and 15 of the sealing gasket that cooperate, respectively, with the upper edge and with the front edge of the glass G.

[0025] The lower portion 9 of the sealing and guiding gasket, which cooperates with the rear edge of the glass G, is pre-assembled inside a channel element 16 made of plastic material (visible in perspective view in Figure 6), which is then assembled, with the lower portion 9 of the sealing and guiding gasket inserted therein inside the lower structure 3 of the door, as visible in Figure 5.

[0026] Figure 5 shows the structure 2 of the door 1, including the inner sheet metal panel 3a forming part of the lower structure 3 of the door. Figure 5 also shows the portions 14, 15 of the sealing and guiding gasket, which cooperate with the upper edge and with the front edge of the glass G (illustrated in its raised position), as well as the lower portion 9 of the sealing and guiding gasket, which cooperates with the rear edge of the glass G. Figure 5 shows the mounting position of the plastic channel element 16, which internally supports the lower portion 9 of the portion of the gasket that cooperates with the

rear edge of the glass G.

[0027] Figure 7 shows a perspective view of the aforesaid lower portion 9 of the sealing and guiding gasket that cooperates with the rear edge of the glass,

[0028] Figure 3 shows the channel element 16 made of plastic material in cross-section, with the lower portion 9 of the sealing and guiding gasket mounted therein. The channel element 16 comprises an inner side wall 160, an outer side wall 161 and a central wall 162 that connects the side walls 160, 161 to each other. In the mounted condition on the motor-vehicle, the side walls 160, 161 are substantially parallel to the longitudinal vertical plane of the motor-vehicle, while the wall 162 is arranged in a vertical plane substantially transverse with respect to the longitudinal direction of the motor-vehicle. Like the upper portion 8 of the gasket, the lower portion 9 also has a groove 17 within which an element G2, carried by the inner surface of the glass G, is engaged. The groove 17 is defined by a portion of the lower portion 9 of the sealing gasket mounted above an inner rib 18 of the channel element 16. In this case as well, the lower portion 9 of the sealing and guiding gasket includes deformable lips 13, arranged to engage the rear edge and the inner surface of the glass G, illustrated in their undeformed condition in Figure 3.

[0029] With reference to Figure 13, the engagement elements G1, G2 are defined by teeth protruding from a profile strip of plastic material 20, glued to the inner surface of the glass G. The teeth G1, G2 are spaced apart from each other, and positioned in such a way that the tooth G1 is always engaged within the upper portion 8 of the portion of the sealing and guiding gasket that cooperates with the rear edge of the glass G, both when the glass is in its raised position and when the glass is in its lowered position, or in any intermediate position between said raised and lowered positions. The tooth G2 is arranged to be always engaged within the lower portion 9 of the portion of the sealing and guiding gasket, which cooperates with the rear edge of the glass G, both when the glass G is in its raised position and when it is in its lowered position, and when the glass G is in any intermediate position between said raised and lowered positions. This condition is clearly visible in Figures 14 and 15 of the attached drawings that show the glass in the lowered position and in the raised position, respectively.

[0030] The main advantage of the provision of the portion of the gasket that cooperates with the rear edge of the glass G in an upper portion 8, and in a lower portion 9, separated from each other, consists of a dramatic simplification of the operations for mounting the glass G on the door. In order to further facilitate the assembling operation, the channel element 16, within which the lower portion 9 of the gasket is pre-assembled, has an upper end portion thereof protruding above the upper end of the gasket portion 9 (see, in particular, Figures 9-11). At said upper end portion of the channel element 16, the side walls 160, 162 and the central wall 161 have inner surfaces including inclined surface portions 160A, 161A,

162A, which act as lead surfaces for the correct insertion of the lower-rear corner of the glass G during the assembly maneuver of the glass G in the door

[0031] With reference again to Figures 3, 8 and 9-11, the lower portion 9 of the sealing gasket that cooperates with the rear edge of the glass G has a cross-section having a general C-shape, with an inner side wall 90, a central wall 91 and an outer side wall 92 which is engaged above the rib 18.

[0032] As can be seen in Figures 9-11, in the assembled condition of the lower portion 9 of the sealing gasket inside the plastic channel element 16, the inner side wall 90 of the gasket portion 9 is located adjacent to the inner side wall 160 of the channel element 16, and has its top surface adjacent to the lower end of the inclined surface 160A, in such a way that, during insertion of the glass G, the glass slides against the surface 160A until it fits correctly in the channel defined by the gasket portion 9. Similarly, the central wall 91 of the lower gasket portion 9 (Figure 10) is adjacent to the central wall 161 of the channel element 16, and has its top surface adjacent to the lower end of the inclined surface 161A, in such a way that, during insertion of the glass G, the glass is guided until it correctly engages the channel defined by the lower gasket portion 9. Finally, the outer wall 92 of the lower gasket portion 9 is adjacent to the outer side wall 162 of the channel element 16 (Figure 11). The side wall 162 has an inclined surface 162A, which guides the glass G during its downward insertion movement inside the channel element 16, so as to correctly engage it within the channel defined by the lower gasket portion 9.

[0033] As already indicated above, the lower portion 9 of the sealing gasket, which cooperates with the rear edge of the glass G, is pre-assembled within the channel element 16 before mounting of the channel element 16 within the lower structure 3 of the door. As is evident from the above description, the inclined surfaces 160A, 162A create the correct position reference of the glass with respect to the channel element 16, along a horizontal direction transverse with respect to the longitudinal direction of the motor-vehicle (with reference to the mounted condition on the motor-vehicle). At the same time, the inclined surface 161A refers the glass into the correct position with respect to the longitudinal direction of the motor-vehicle. Finally, the lower end surface of the lower gasket portion 9 abuts against a lower wall 163 (Figure 12) of the channel element 16, so as to obtain a reference in the correct position of the lower gasket portion 9 within the channel element 16 with respect to the vertical direction.

[0034] Figures 16-20 show the different steps of the assembling of the various portions of the sealing gaskets within the structure of the door 1.

[0035] Figure 16 shows the step wherein the channel element 16, inside which the lower gasket portion 9 has been previously assembled, is inside the lower structure 3 of the door.

[0036] Figure 17 shows the final mounting condition of

the channel element 16 within the lower structure 3 of the door.

[0037] Figure 18 shows the final condition following a second step of the door assembly, wherein - on the upper frame 4 of the door structure - the upper portion 14 of the sealing gasket intended to cooperate with the upper edge of the glass is assembled, along with the front portion 15 of the sealing gasket intended to cooperate with the front edge of the glass, and the upper portion 8 of the gasket portion intended to cooperate with the rear edge of the glass.

[0038] Once the sealing and guiding gaskets of the glass G have been assembled as such, the glass G is inserted from above into the lower structure 3 of the door, engaging the rear-lower corner of the glass G within the upper end of the channel element 16 (20), in such a way that the inclined guide surfaces 160A, 161A, 162A, which have been described above (see Figures 9-11), favor the correct engagement of the glass within the lower portion 9 of the portion of the sealing gasket intended to cooperate with the rear edge of the glass.

[0039] With reference, in particular, to Figure 8, the inner side wall 90 of the lower portion 9 of the sealing gasket has a recess 90A (which in the example illustrated has a V-shape), with a vertical rear side and an inclined front side ("rear" and "front" are always used here with reference to the advancing direction of the motor-vehicle), which makes the operation of inserting the glass G inside the lower portion 9 of the gasket even easier and simpler.

[0040] As is evident from the above description, the invention makes it possible to drastically simplify the assembling operations of the door and, in particular, to facilitate the operation of inserting the glass into the door, always ensuring the mounting of the glass in the correct position. This result is obtained by simple means, without any substantial impact on the complexity and cost of manufacturing (which actually benefits from an increase in productivity).

[0041] Naturally, without prejudice to the principle of the invention, the details of construction and the embodiments may vary widely with respect to those described and illustrated purely by way of example, without departing from the scope of the present invention as defined in the appended claims.

Claims

1. A device for guiding a sliding glass (G) of a motor-vehicle side door (1), comprising
 - a door structure (2), including a lower door structure (3) and an upper frame (4) defining a window opening (5),
 - the upper door frame (4) including a door up-right (6) which is to be adjacent to a central pillar of the motor-vehicle,

- a sealing and guiding gasket (8, 9, 14, 15) guiding said sliding glass (G), secured to said door structure (2), and having a part (8, 9) extending along said door upright (6) and inside said lower door structure, (3) 5
- an aesthetic panel of plastic material (7), secured to said door upright (6), on an outer side thereof, 10
- a glass (G) slidably mounted vertically in the door structure (2) between a closed raised position in which it closes the window opening (5) and a lowered position in which the glass (G) is received within the lower door structure (3), 15
- wherein the glass (G) has an inner surface carrying at least two spaced apart engagement elements (G1, G2) that are slidably engaged with-in said guiding and sealing gasket (8, 9), in such a way that in the raised position of the glass (G), said glass has its outer surface that is flush with the outer surface of said aesthetic panel of plastic material (7), 20
- said gasket (8, 9, 14, 15) having an upper gasket portion (8), which extends along said door upright (6), and which is secured within a space defined between the door upright (6) and said aesthetic panel of plastic material (7), 25

said device being **characterized in that:**

- said part of the sealing and guiding gasket that extends along said door upright (6) and inside the lower door structure (3) comprises two separate portions (8,9): said upper gasket portion (8) and a lower gasket portion (9), which is arranged within said lower door structure (3), and which is assembled within a channel element of plastic material (16) mounted within said lower door structure (3), 30
- said channel element of plastic material (16) has an upper end portion protruding above the upper end of said lower gasket portion (9), and having inclined inner surfaces (160A, 161A, 162A) configured to guide the insertion of the glass (G) into said lower gasket portion (9) during assembling of the door, and wherein: 35
- the upper end portion of the plastic channel element (16) has a central wall (161) and two opposite side walls (160, 162), 40
- in the mounted condition of said channel element (16), said side walls (160, 162) are substantially parallel to the longitudinal vertical plane of the motor-vehicle, 50
- said inclined inner surfaces (160A, 161A, 162A) are provided on the inner surfaces of said side walls (160, 162), to locate the glass in position along a horizontal direction, transverse with respect to the longitudinal direction of the motor-vehicle, as well as on the inner surface of 55

said central wall (161), to locate the glass (G) in position with respect to the longitudinal direction of the motor-vehicle, and wherein:

- in the assembled condition of the lower portion (9) of the sealing gasket inside the plastic channel element (16), an inner side wall (90) of the gasket lower portion (9) is located adjacent to the inner side wall (160) of the channel element (16), and has a top surface adjacent to the lower end of the inclined surface (160A) on said inner side wall (160) of the channel element, in such a way that, during insertion of the glass (G), the glass slides against the inclined surface (160A) of the inner side wall (160) of the channel element until it fits correctly in a channel defined by the gasket portion (9),
- a central wall (91) of the lower gasket portion (9) is adjacent to the central wall (161) of the channel element (16), and has a top surface adjacent to the lower end of the inclined surface (161A) on said central wall (161) of the channel element (16), in such a way that, during insertion of the glass (G), the glass is guided until it correctly engages the channel defined by the lower gasket portion (9),
- an outer side wall (92) of the lower gasket portion (9) is adjacent to the outer side wall (162) of the channel element (16), the inclined surface (162A) on the outer side wall (162) of the channel element (16) being adapted to guide the glass (G) during its downward insertion movement inside the channel element (16), so as to correctly engage the glass within the channel defined by the lower gasket portion (9).

2. A guiding device according to claim 1, **characterized in that** the top edge of the inner side wall (90) of the lower portion (9) of the sealing gasket has a recess (90A) with a vertical rear side and an inclined front side, with reference to the advancing direction of the motor-vehicle, such that the operation of inserting the glass (G) inside the lower portion (9) of the gasket is made easier.
3. A guiding device according to claim 1, **characterized in that** the channel element of plastic material (16) has a lower end with a stop surface (163) for engaging the lower end of the aforesaid lower gasket portion (9), to locate the lower gasket portion (9) in the vertical position with respect to the channel element (16).
4. A guiding device according to claim 1, **characterized in that** said at least two engagement elements (G1, G2) carried by the inner surface of the glass (G) are spaced apart from each other, and positioned in such a way that each of them is always engaged either with said upper gasket portion (8) or with said lower

gasket portion (9), respectively.

Patentansprüche

1. Vorrichtung zum Führen einer Gleitscheibe (G) einer Kraftfahrzeugseitentür (1), umfassend

- eine Türstruktur (2), umfassend eine untere Türstruktur (3) und einen oberen Rahmen (4), die eine Fensteröffnung (5) definieren,
- wobei der obere Türrahmen (4) einen Türpfosten (6) umfasst, der an eine Mittelsäule des Kraftfahrzeugs angrenzt,
- eine Führungsdichtung (8, 9, 14, 15), die die Gleitscheibe (G) führt, an der Türstruktur (2) befestigt ist und einen Teil (8, 9) aufweist, der sich entlang des Türpfostens (6) und innerhalb der unteren Türstruktur (3) erstreckt,
- eine ästhetische Platte aus Kunststoffmaterial (7), die an dem Türpfosten (6) auf einer Außenseite desselben befestigt ist,
- eine Scheibe (G), die zwischen einer geschlossenen angehobenen Stellung, in der sie die Fensteröffnung (5) verschließt, und einer abgesenkten Stellung, in der die Scheibe (G) in der unteren Türstruktur (3) aufgenommen wird, vertikal verschiebbar in die Türstruktur (2) montiert ist,
- wobei die Scheibe (G) eine Innenfläche hat, die mindestens zwei beabstandete Eingriffselemente (G1, G2) trägt, die derart verschiebbar in Eingriff mit der Führungsdichtung (8, 9) sind, dass die Außenfläche der Scheibe in der angehobenen Stellung der Scheibe (G) bündig mit der Außenfläche der ästhetischen Platte aus Kunststoffmaterial (7) ist,
- wobei die Dichtung (8, 9, 14, 15) einen oberen Dichtungsabschnitt (8) aufweist, der sich entlang des Türpfostens (6) erstreckt und in einem Raum befestigt ist, der zwischen dem Türpfosten (6) und der ästhetischen Platte aus Kunststoffmaterial (7) definiert ist,

wobei die Vorrichtung **dadurch gekennzeichnet ist, dass:**

- der Teil der Führungsdichtung, der sich entlang des Türpfostens (6) und in der unteren Türstruktur (3) erstreckt, zwei separate Abschnitte (8, 9) umfasst: den oberen Dichtungsabschnitt (8) und einen unteren Dichtungsabschnitt (9), der in der unteren Türstruktur (3) angeordnet ist und der in ein Kanalelement aus Kunststoffmaterial (16) eingebaut ist, das in die untere Türstruktur (3) montiert ist,
- wobei das Kanalelement aus Kunststoffmaterial (16) einen oberen Endabschnitt aufweist,

der über das obere Ende des unteren Dichtungsabschnitts (9) vorsteht und schräge Innenflächen (160A, 161A, 162A) aufweist, die gestaltet sind, um das Einführen der Scheibe (G) in den unteren Dichtungsabschnitt (9) bei der Montage der Tür zu führen, und wobei:

- der obere Endabschnitt des Kunststoffkanalelements (16) eine mittlere Wand (161) und zwei entgegengesetzte Seitenwände (160, 162) aufweist,
- die Seitenwände (160, 162) im eingebauten Zustand des Kanalelements (16) im Wesentlichen parallel zur longitudinalen vertikalen Ebene des Kraftfahrzeugs sind,
- die schrägen Innenflächen (160A, 161A, 162A) auf den Innenflächen der Seitenwände (160, 162) zum Anordnen der Scheibe in Position entlang einer horizontalen Richtung, quer zur Längsrichtung des Kraftfahrzeugs, und auf den Innenflächen der mittleren Wand (161) zum Anordnen der Scheibe (G) in Position bezogen auf die Längsrichtung des Kraftfahrzeugs vorgesehen sind, und wobei:
- im eingebauten Zustand des unteren Abschnitts (9) der Dichtung innerhalb des Kunststoffkanalelements (16) eine innere Seitenwand (90) des unteren Abschnitts (9) der Dichtung angrenzend an die innere Seitenwand (160) des Kanalelements (16) angeordnet ist und eine obere Oberfläche aufweist, die derart an das untere Ende der schrägen Oberfläche (160A) auf der inneren Seitenwand (160) des Kanalelements angrenzt, dass beim Einführen der Scheibe (G) die Scheibe gegen die schräge Oberfläche (160A) der inneren Seitenwand (160) des Kanalelements gleitet, bis sie richtig in einem Kanal sitzt, der durch den Dichtungsabschnitt (9) definiert wird,
- eine mittlere Wand (91) des unteren Dichtungsabschnitts (9) an die mittlere Wand (161) des Kanalelements (16) angrenzt und eine obere Oberfläche aufweist, die derart an das untere Ende der schrägen Oberfläche (161A) auf der mittleren Wand (161) des Kanalelements (16) angrenzt, dass die Scheibe beim Einführen der Scheibe (G) geführt wird, bis sie richtig in den Kanal eingreift, der durch den unteren Dichtungsabschnitt (9) definiert wird,
- eine äußere Seitenwand (92) des unteren Dichtungsabschnitts (9) an die äußere Seitenwand (162) des Kanalelements (16) angrenzt, wobei die schräge Oberfläche (162A) auf der äußeren Seitenwand (162) des Kanalelements (16) dazu eingerichtet ist, die Scheibe (G) während der Einführbewegung nach unten in das Kanalelement (16) zu führen, sodass die Scheibe richtig in den Kanal eingreift, der durch den unteren Dichtungsabschnitt (9) definiert wird.

2. Führungsvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Oberkante der inneren Seitenwand (90) des unteren Abschnitts (9) der Dichtung eine Vertiefung (90A) mit einer vertikalen Rückseite und einer schrägen Vorderseite bezogen auf die Fortbewegungsrichtung des Kraftfahrzeugs aufweist, sodass der Vorgang des Einführens der Scheibe (G) in den unteren Abschnitt (9) der Dichtung erleichtert wird. 5
3. Führungsvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** das Kanalelement aus Kunststoffmaterial (16) ein unteres Ende mit einer Anschlagfläche (163) für den Eingriff mit dem unteren Ende des vorgenannten unteren Dichtungsabschnitts (9) aufweist, um den unteren Dichtungsabschnitt (9) in der vertikalen Position bezogen auf das Kanalelement (16) anzuordnen. 10
4. Führungsvorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die mindestens zwei Eingriffselemente (G1, G2), die von der Innenfläche der Scheibe (G) getragen werden, voneinander beabstandet und derart positioniert sind, dass jedes von ihnen jeweils stets im Eingriff entweder mit dem oberen Dichtungsabschnitt (8) oder mit dem unteren Dichtungsabschnitt (9) ist. 20 25

Revendications 30

1. Dispositif de guidage d'une vitre coulissante (G) d'une porte latérale de véhicule automobile (1), comprenant 35
- une structure de porte (2), comprenant une structure de porte inférieure (3) et un cadre supérieur (4) définissant une ouverture de fenêtre (5),
 - le cadre de porte supérieur (4) comprenant un montant de porte (6) qui doit être adjacent à un pilier central du véhicule automobile, 40
 - un joint d'étanchéité et de guidage (8, 9, 14, 15) guidant ladite vitre coulissante (G), fixé à ladite structure de porte (2), et ayant une partie (8, 9) s'étendant le long dudit montant de porte (6) et à l'intérieur de ladite structure de porte inférieure (3), 45
 - un panneau esthétique en matière plastique (7), fixé audit montant de porte (6), sur un côté extérieur de celui-ci, 50
 - une vitre (G) montée coulissante verticalement dans la structure de porte (2) entre une position élevée fermée dans laquelle elle ferme l'ouverture de fenêtre (5) et une position abaissée dans laquelle la vitre (G) est reçue dans la structure de porte inférieure (3), 55
 - dans lequel la vitre (G) présente une surface

intérieure portant au moins deux éléments d'engagement espacés (G1, G2) qui sont engagés de manière coulissante à l'intérieur dudit joint de guidage et d'étanchéité (8, 9), de sorte que dans la position élevée de la vitre (G), la surface extérieure de ladite vitre soit au même niveau que la surface extérieure dudit panneau esthétique en matière plastique (7),

- ledit joint (8, 9, 14, 15) ayant une partie de joint supérieure (8), qui s'étend le long dudit montant de porte (6), et qui est fixée dans un espace défini entre le montant de porte (6) et ledit panneau esthétique en matière plastique (7),

ledit dispositif étant **caractérisé en ce que** :

- ladite partie du joint d'étanchéité et de guidage qui s'étend le long dudit montant de porte (6) et à l'intérieur de la structure de porte inférieure (3) comprend deux parties distinctes (8, 9) : ladite partie de joint supérieure (8) et une partie de joint inférieure (9), qui est agencée à l'intérieur de ladite structure de porte inférieure (3), et qui est assemblée à l'intérieur d'un élément de canal en matière plastique (16) monté à l'intérieur de ladite structure de porte inférieure (3),

- ledit élément de canal en matière plastique (16) a une partie d'extrémité supérieure faisant saillie au-dessus de l'extrémité supérieure de ladite partie de joint inférieure (9), et ayant des surfaces intérieures inclinées (160A, 161A, 162A) configurées pour guider l'insertion de la vitre (G) dans ladite partie de joint inférieure (9) pendant l'assemblage de la porte, et dans lequel :

- la partie d'extrémité supérieure de l'élément de canal en plastique (16) a une paroi centrale (161) et deux parois latérales opposées (160, 162),
- dans l'état monté dudit élément de canal (16), lesdites parois latérales (160, 162) sont sensiblement parallèles au plan vertical longitudinal du véhicule automobile,
- lesdites surfaces intérieures inclinées (160A, 161A, 162A) sont prévues sur les surfaces intérieures desdites parois latérales (160, 162), pour placer la vitre en position le long d'une direction horizontale, transversale par rapport à la direction longitudinale du véhicule automobile, ainsi que sur la surface intérieure de ladite paroi centrale (161), pour placer la vitre (G) en position par rapport à la direction longitudinale du véhicule automobile, et dans lequel :
- dans l'état assemblé de la partie inférieure (9) du joint d'étanchéité à l'intérieur de l'élément de canal en plastique (16), une paroi latérale intérieure (90) de la partie inférieure de joint (9) est située de façon adjacente à la paroi latérale intérieure (160) de l'élément de canal (16), et a

- une surface de dessus adjacente à l'extrémité inférieure de la surface inclinée (160A) sur ladite paroi latérale intérieure (160) de l'élément de canal, de sorte que, pendant l'insertion de la vitre (G), la vitre coulisse contre la surface inclinée (160A) de la paroi latérale intérieure (160) de l'élément de canal jusqu'à ce qu'elle s'ajuste correctement dans un canal défini par la partie de joint (9),
- une paroi centrale (91) de la partie de joint inférieure (9) est adjacente à la paroi centrale (161) de l'élément de canal (16), et a une surface de dessus adjacente à l'extrémité inférieure de la surface inclinée (161A) sur ladite paroi centrale (161) de l'élément de canal (16), de sorte que, pendant l'insertion de la vitre (G), la vitre soit guidée jusqu'à ce qu'elle engage correctement le canal défini par la partie de joint inférieure (9),
 - une paroi latérale extérieure (92) de la partie de joint inférieure (9) est adjacente à la paroi latérale extérieure (162) de l'élément de canal (16), la surface inclinée (162A) sur la paroi latérale extérieure (162) de l'élément de canal (16) étant adaptée pour guider la vitre (G) pendant son mouvement d'insertion vers le bas à l'intérieur de l'élément de canal (16), de façon à engager correctement la vitre dans le canal défini par la partie de joint inférieure (9).
2. Dispositif de guidage selon la revendication 1, **caractérisé en ce que** le bord de dessus de la paroi latérale intérieure (90) de la partie inférieure (9) du joint d'étanchéité présente un évidement (90A) avec un côté arrière vertical et un côté avant incliné, en référence à la direction d'avancement du véhicule automobile, de sorte que l'opération d'insertion de la vitre (G) à l'intérieur de la partie inférieure (9) du joint soit facilitée.
3. Dispositif de guidage selon la revendication 1, **caractérisé en ce que** l'élément de canal en matière plastique (16) a une extrémité inférieure avec une surface d'arrêt (163) pour s'engager avec l'extrémité inférieure de la partie de joint inférieure (9) susmentionnée, pour placer la partie de joint inférieure (9) dans la position verticale par rapport à l'élément de canal (16).
4. Dispositif de guidage selon la revendication 1, **caractérisé en ce que** lesdits au moins deux éléments d'engagement (G1, G2) portés par la surface intérieure de la vitre (G) sont espacés l'un de l'autre, et positionnés de sorte que chacun d'entre eux soit toujours engagé soit avec ladite partie de joint supérieure (8) soit avec ladite partie de joint inférieure (9), respectivement.

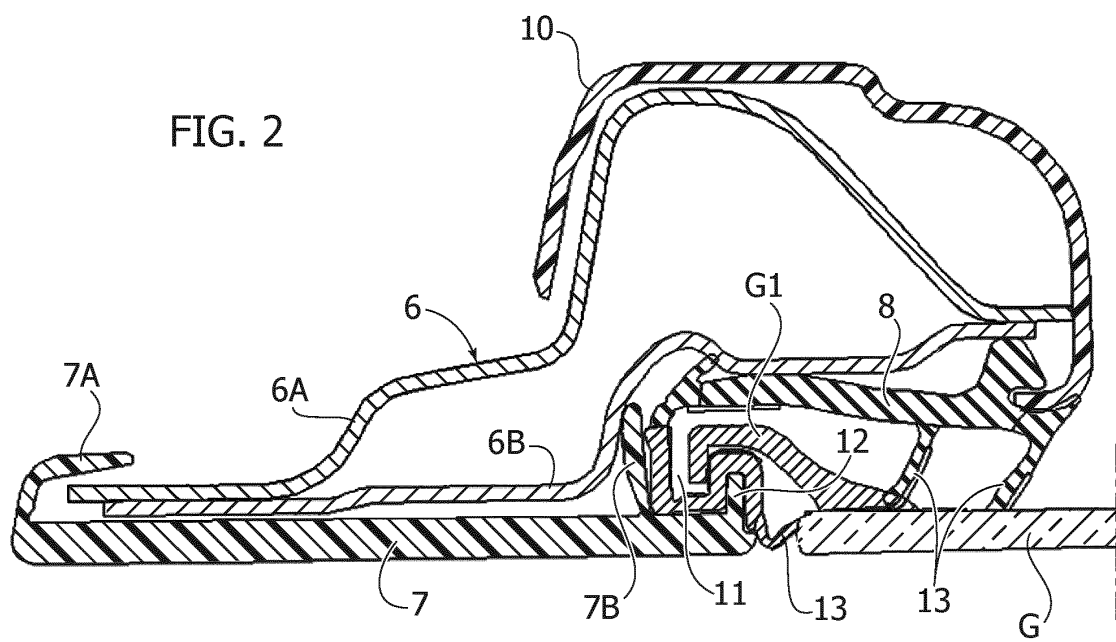
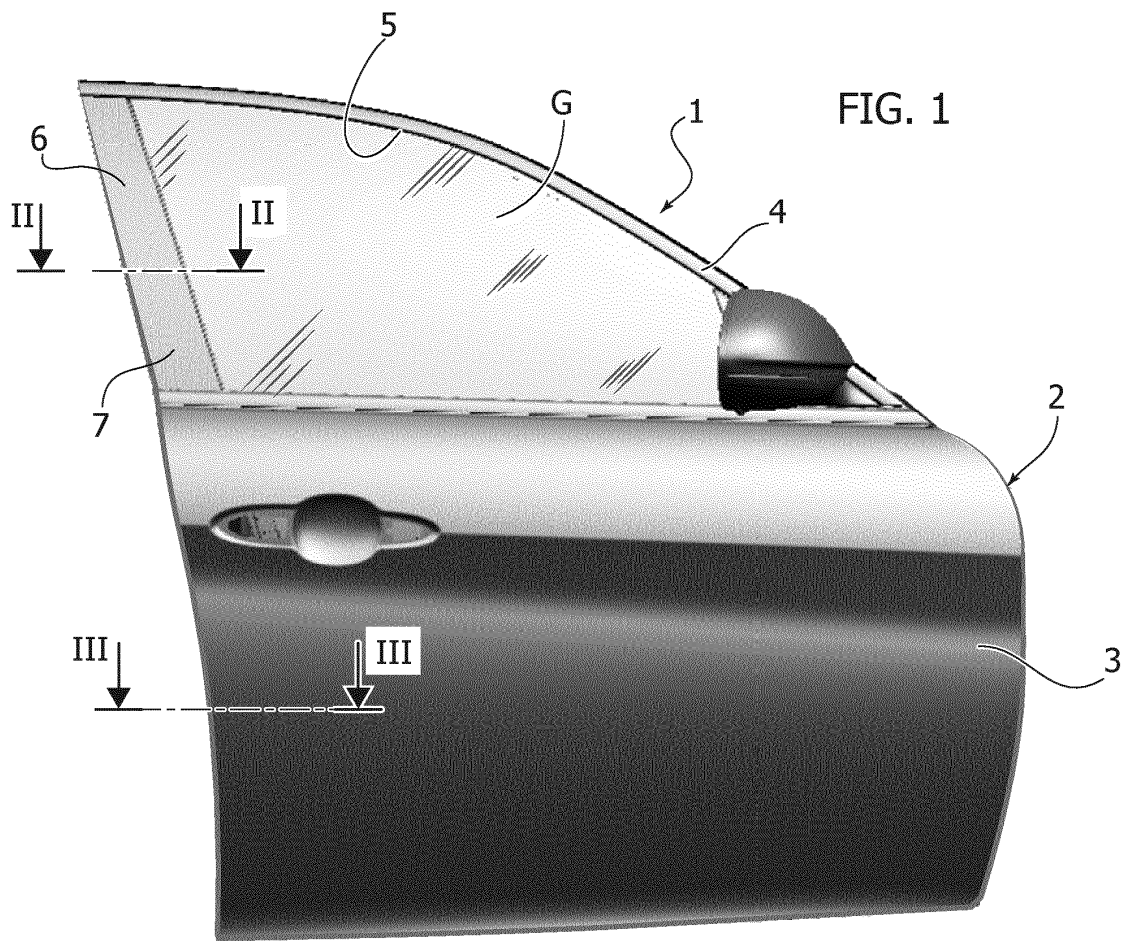


FIG. 3

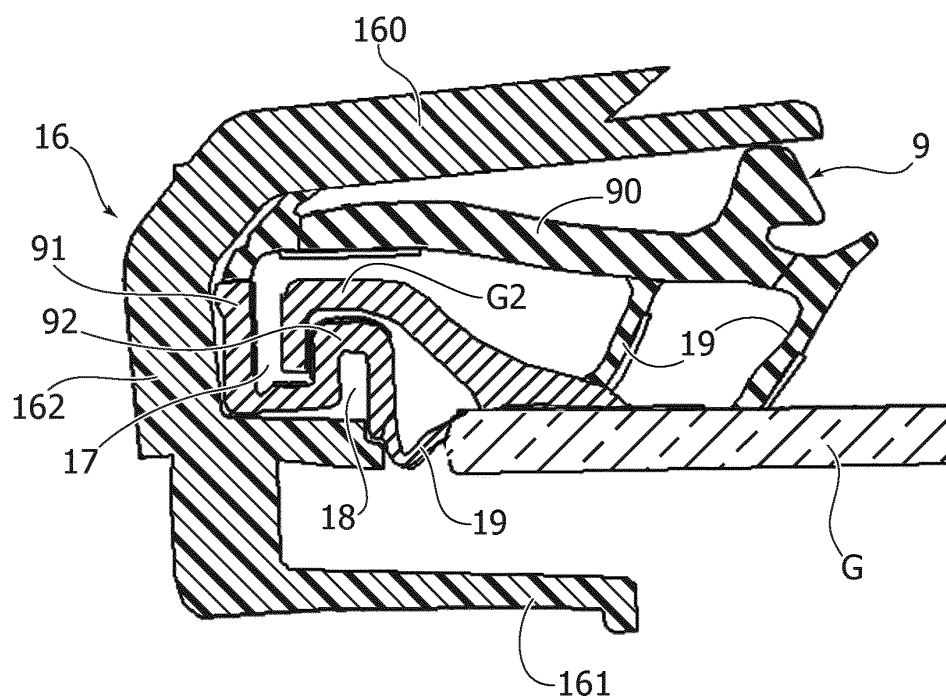


FIG. 4

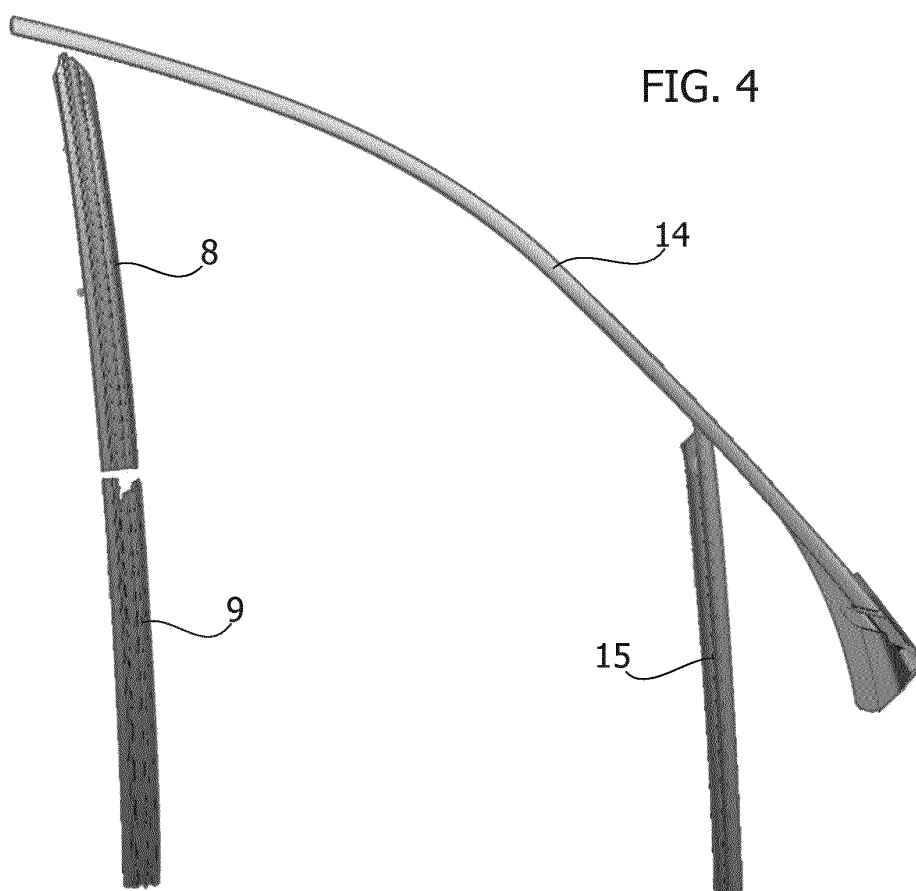


FIG. 5

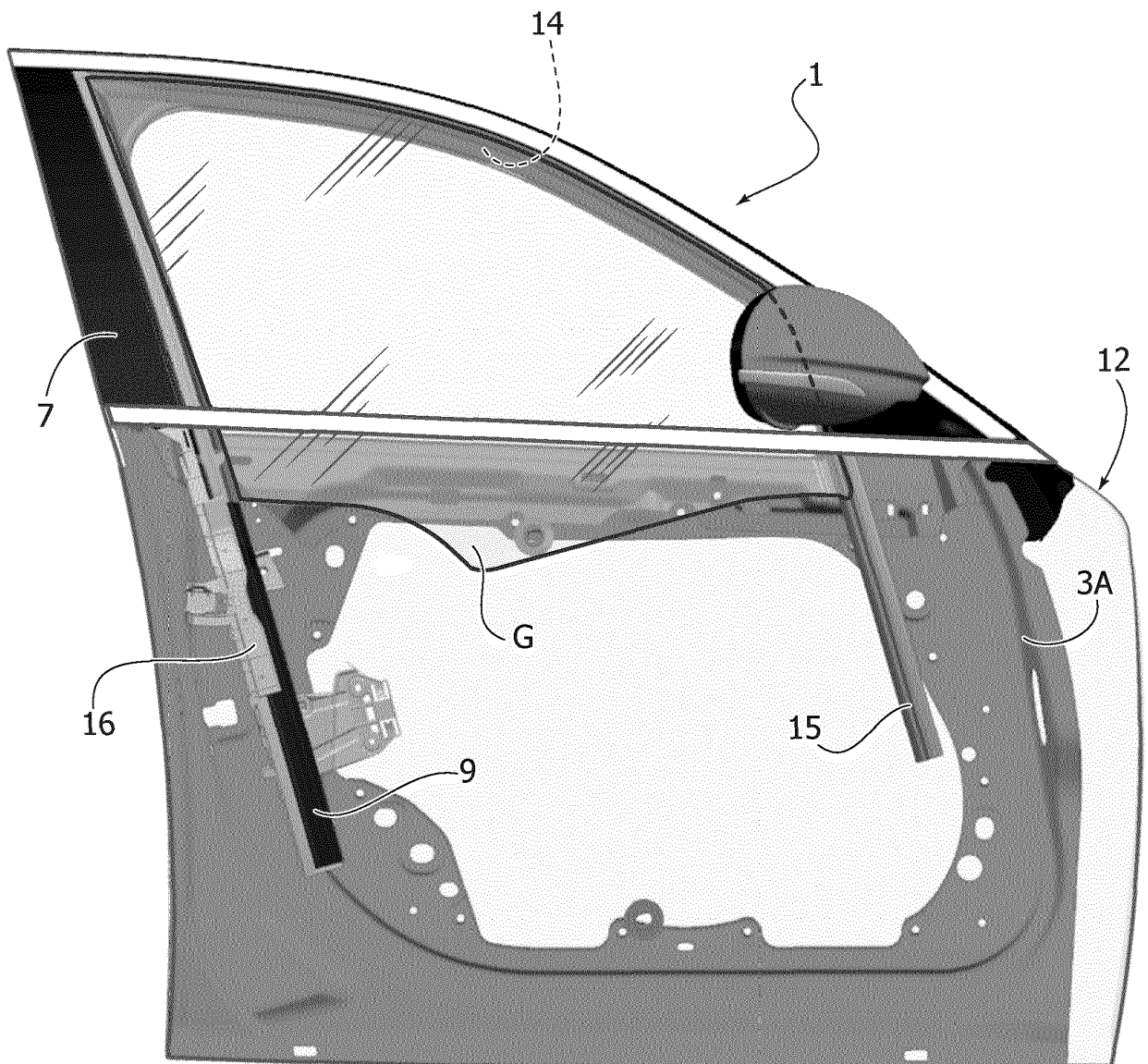


FIG. 6

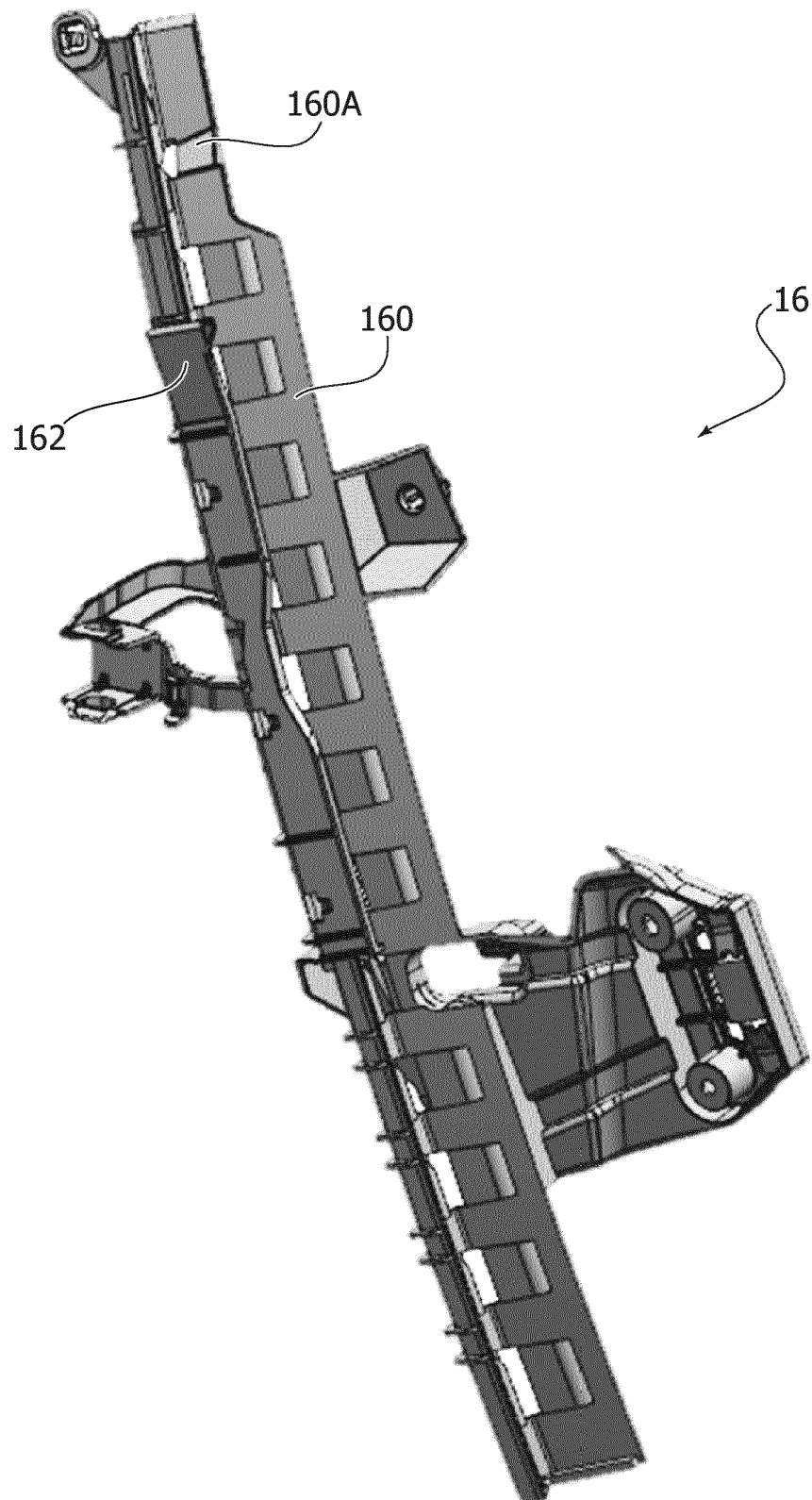


FIG. 7

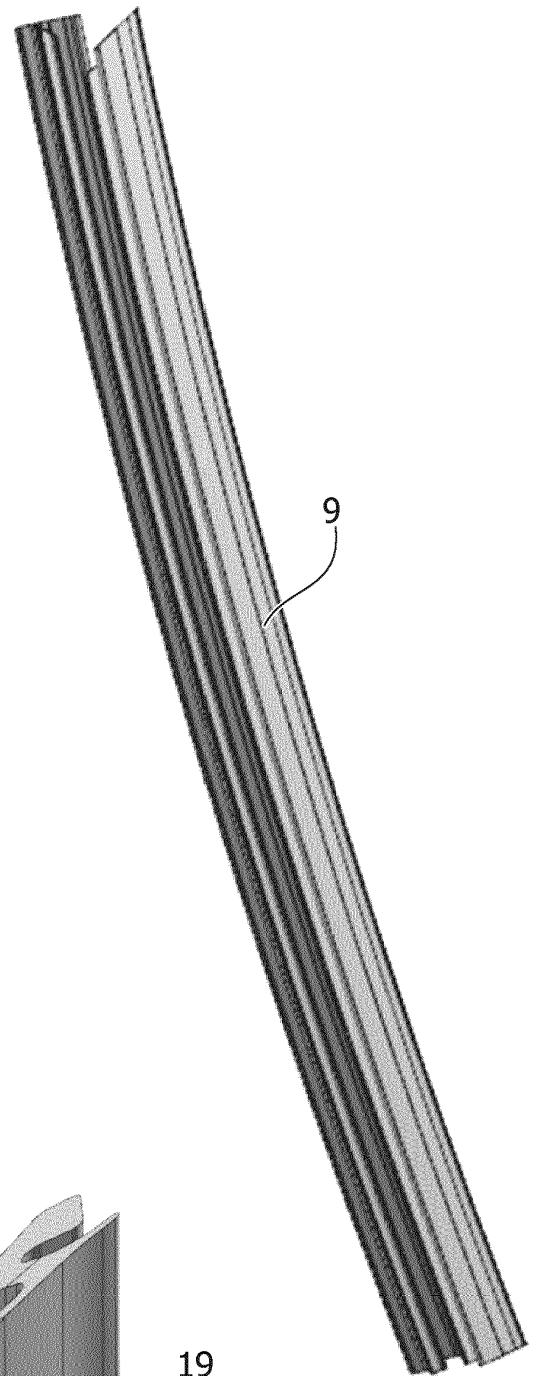


FIG. 8

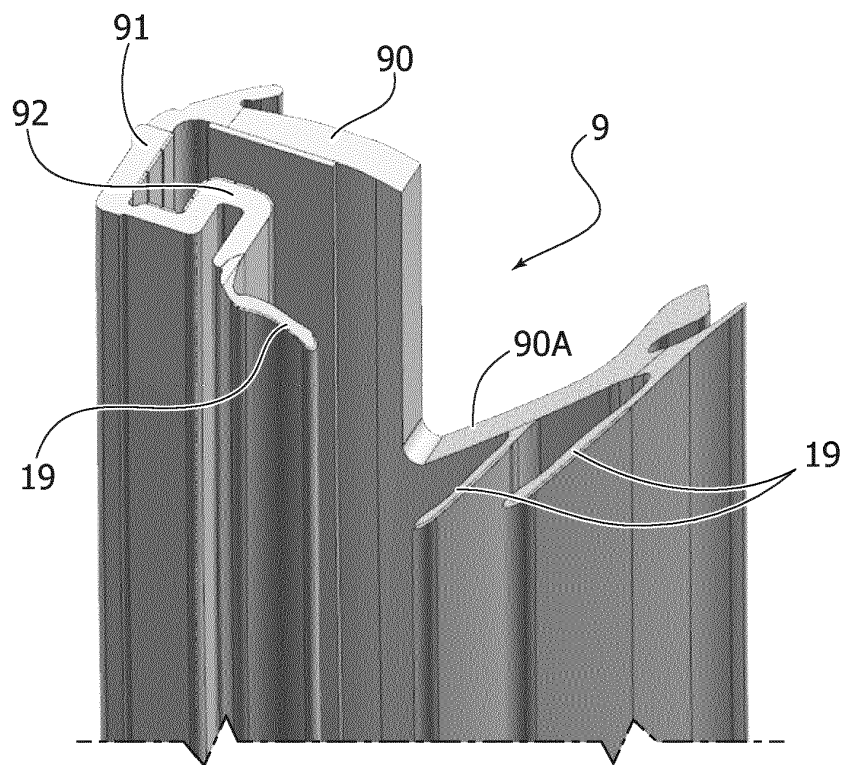


FIG. 9

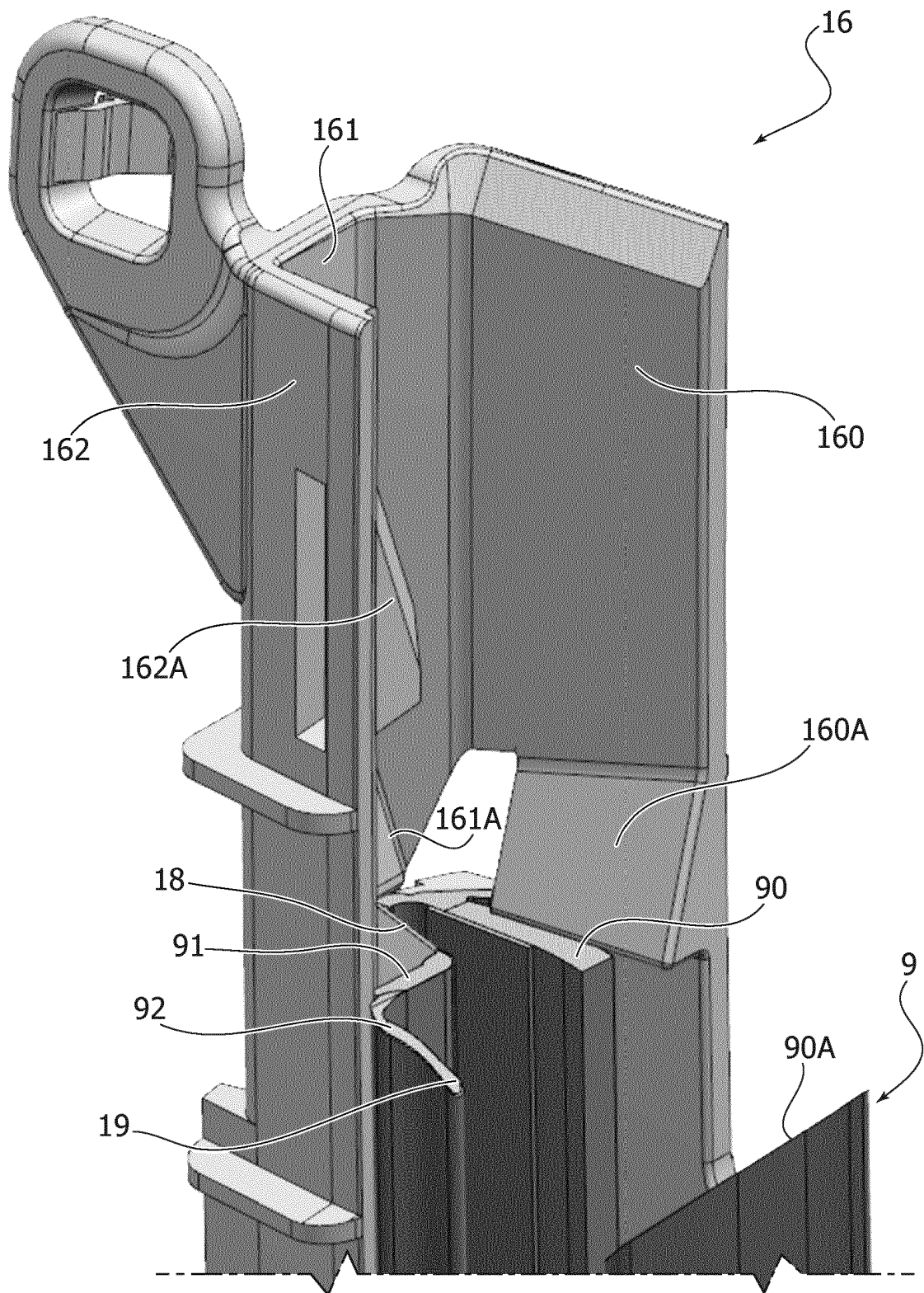


FIG. 10

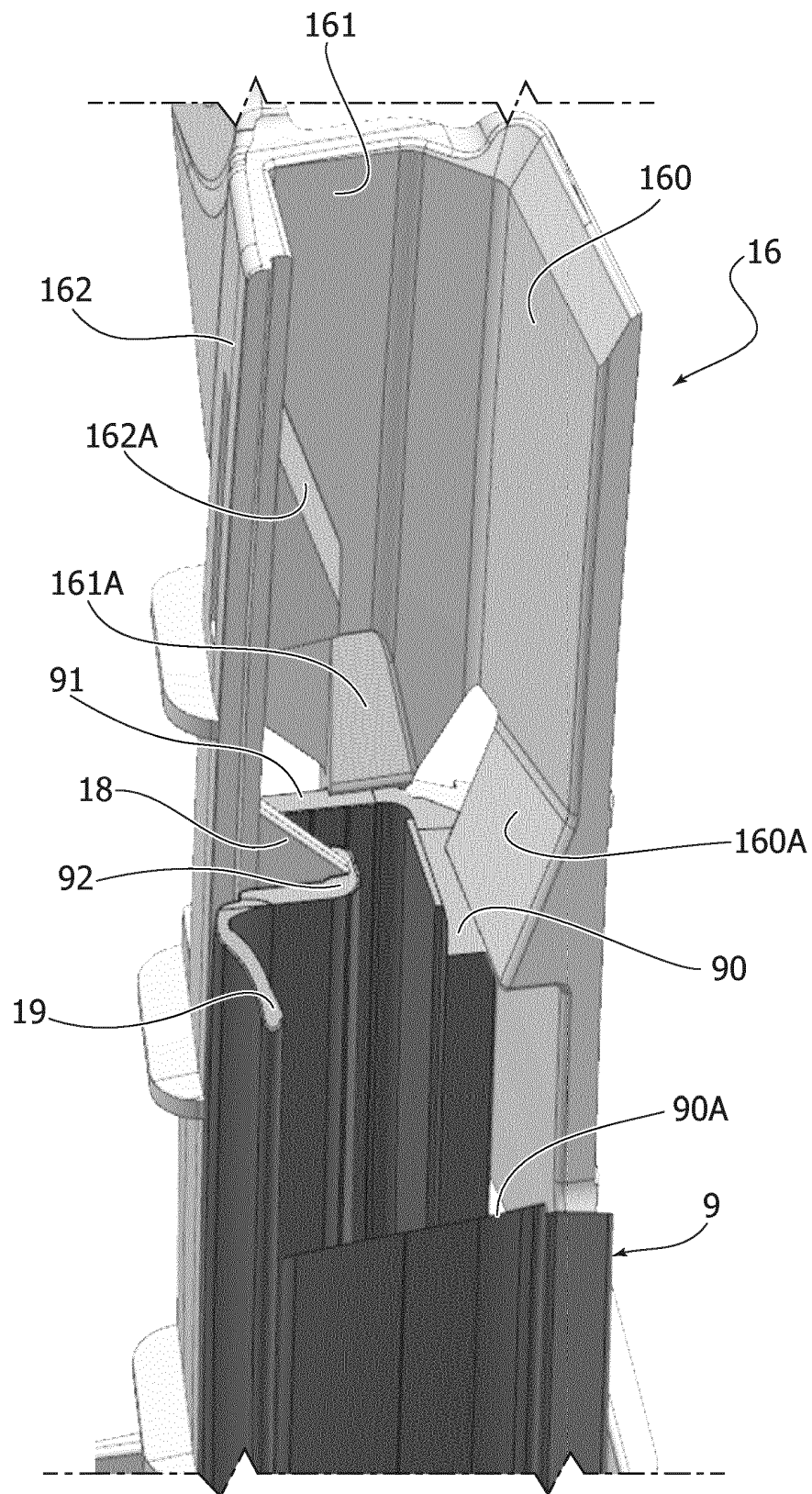


FIG. 11

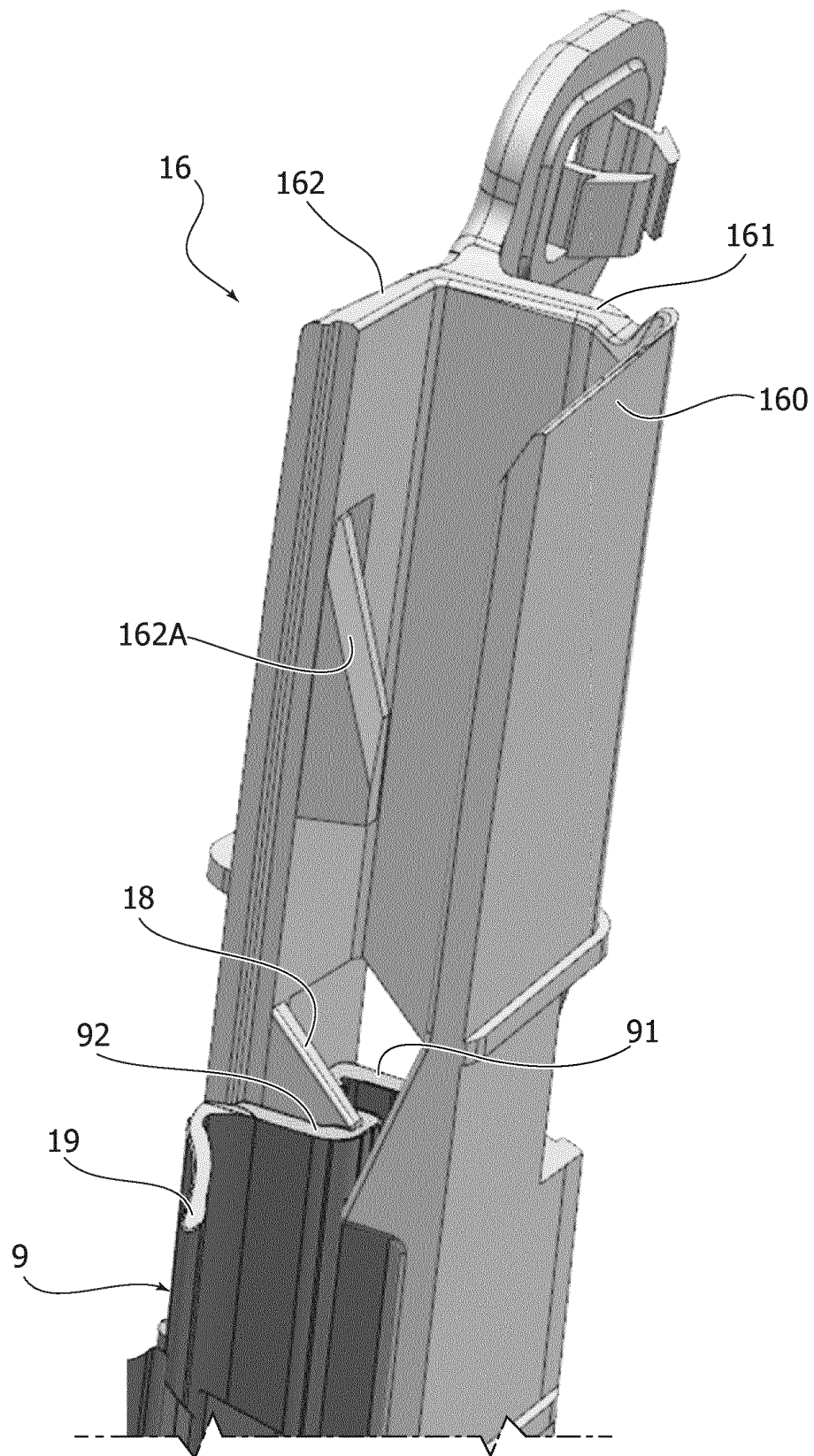


FIG. 12

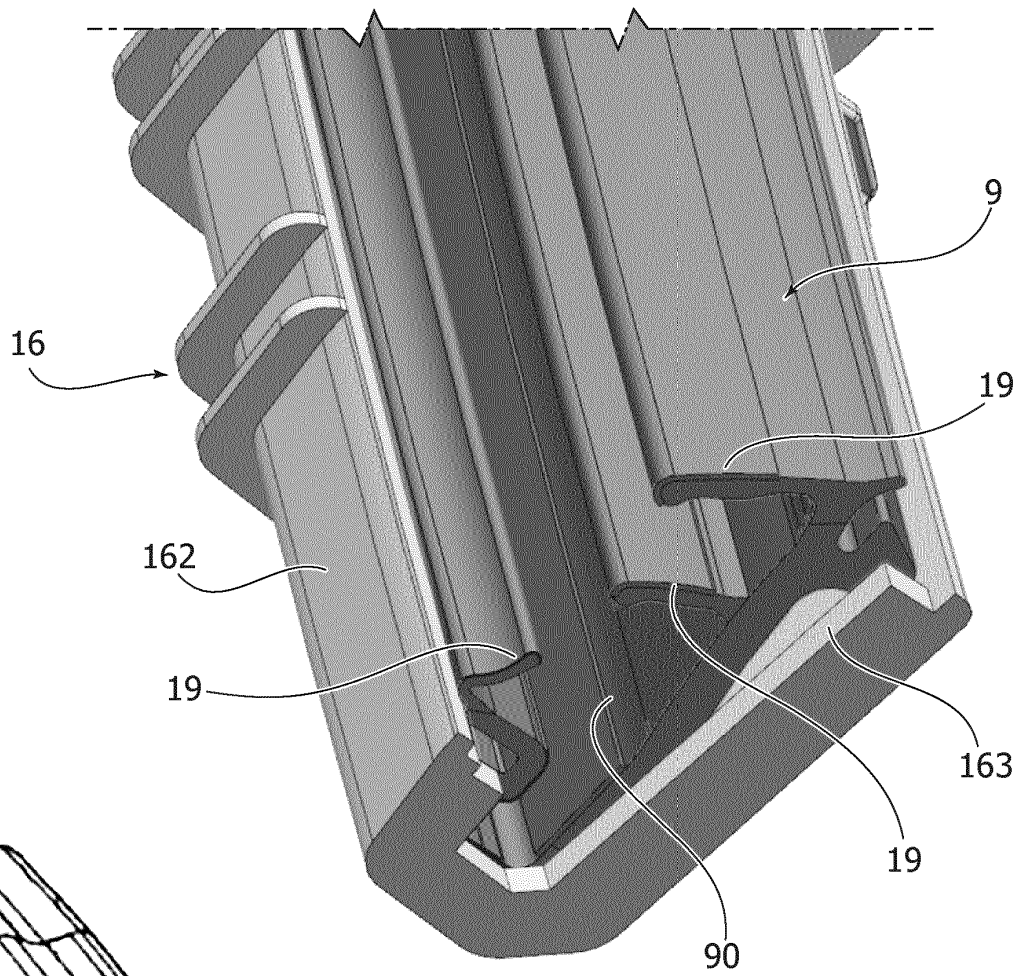


FIG. 13

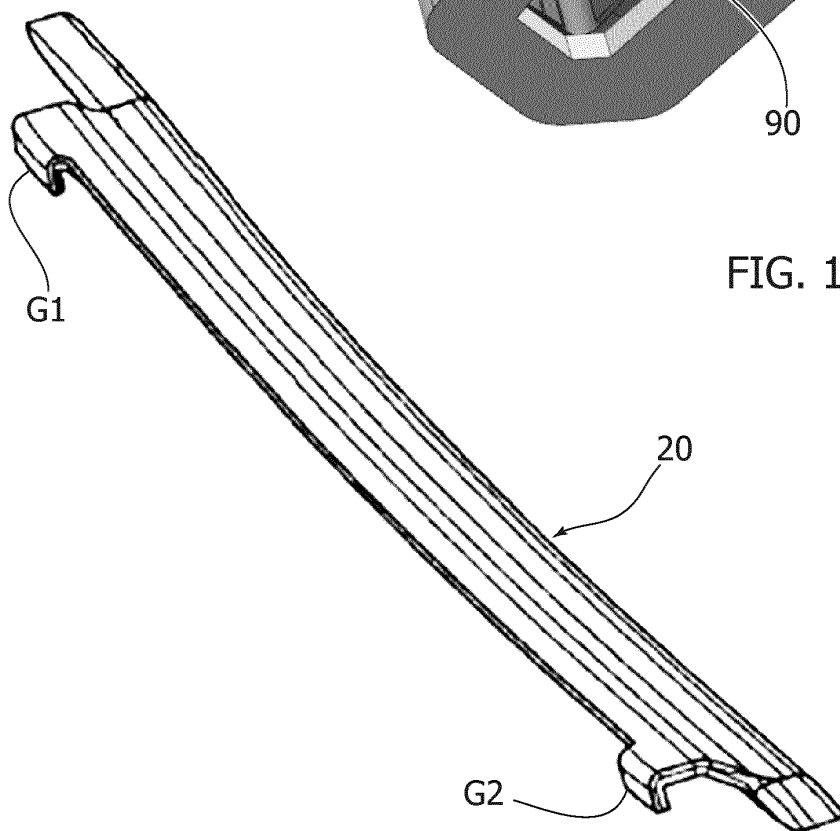


FIG. 14

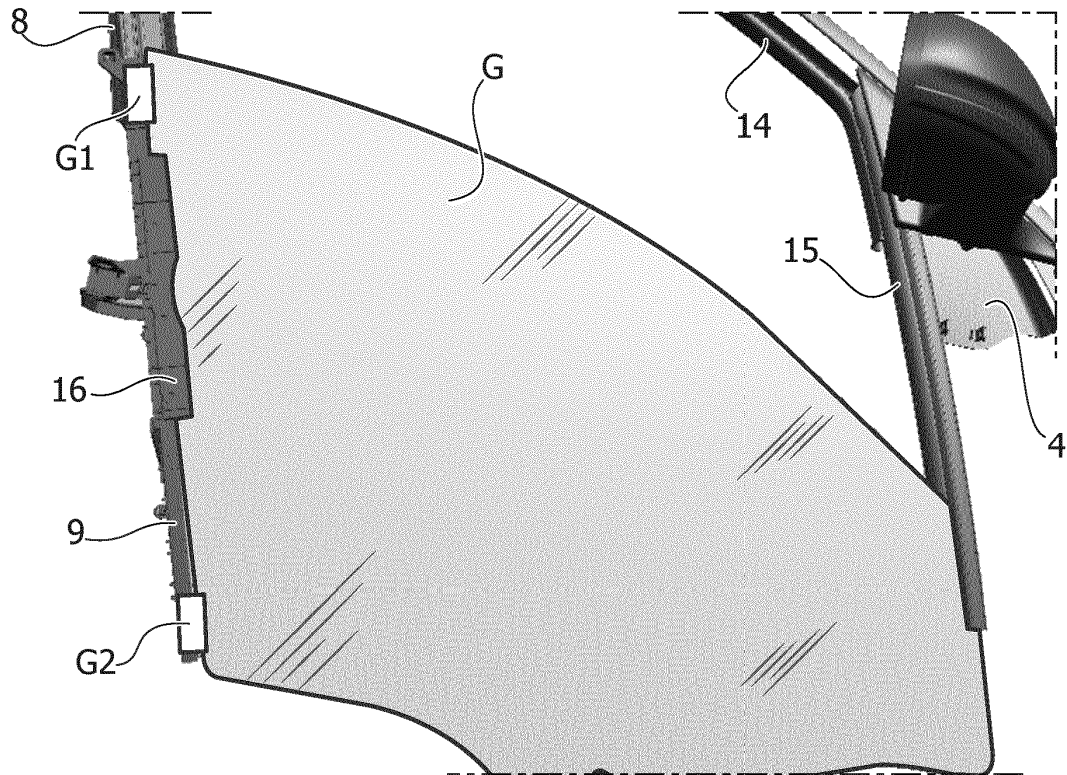


FIG. 15

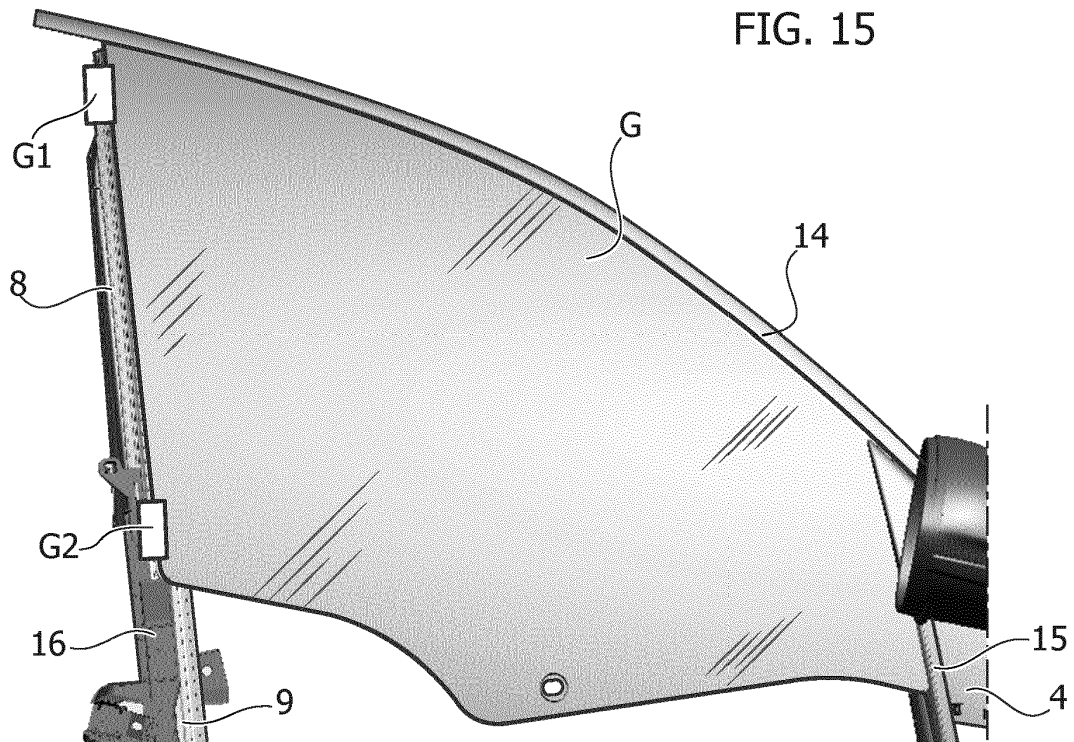


FIG. 16

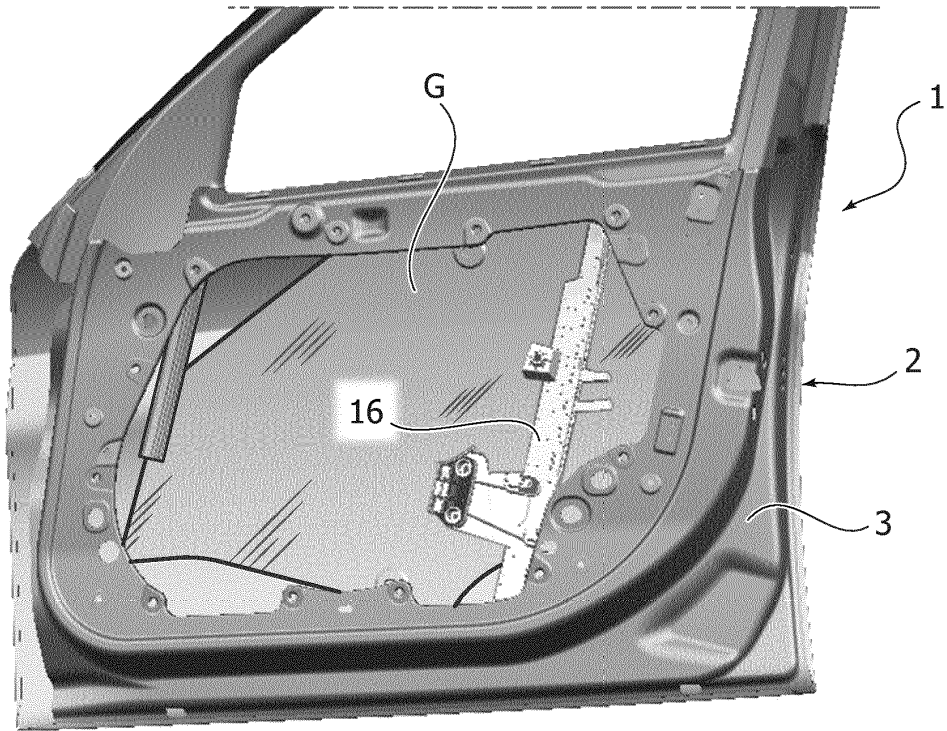


FIG. 17

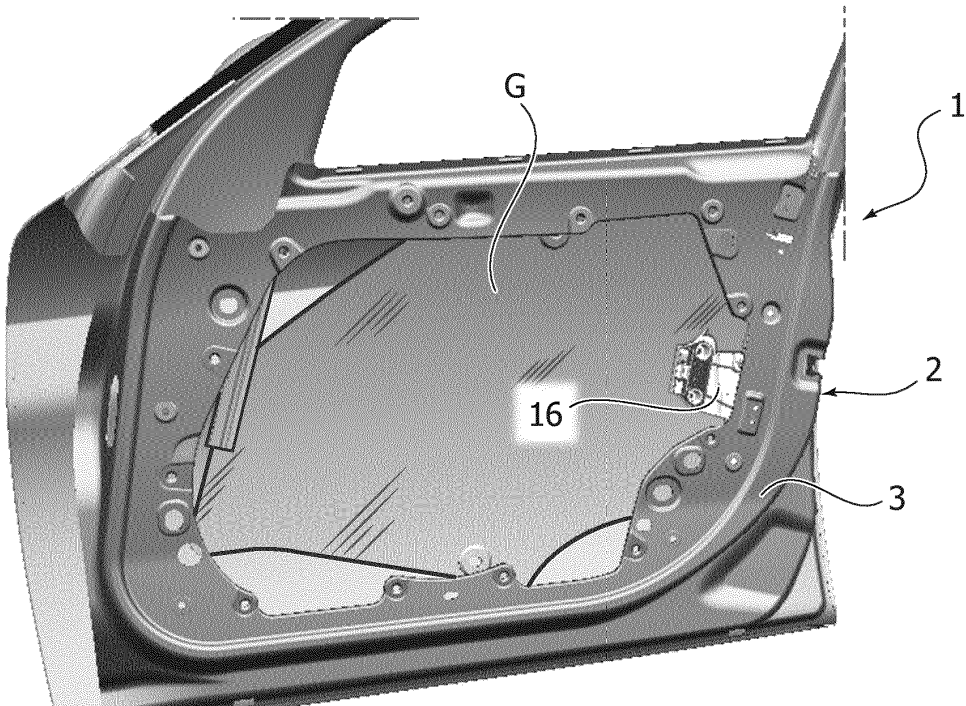


FIG. 18

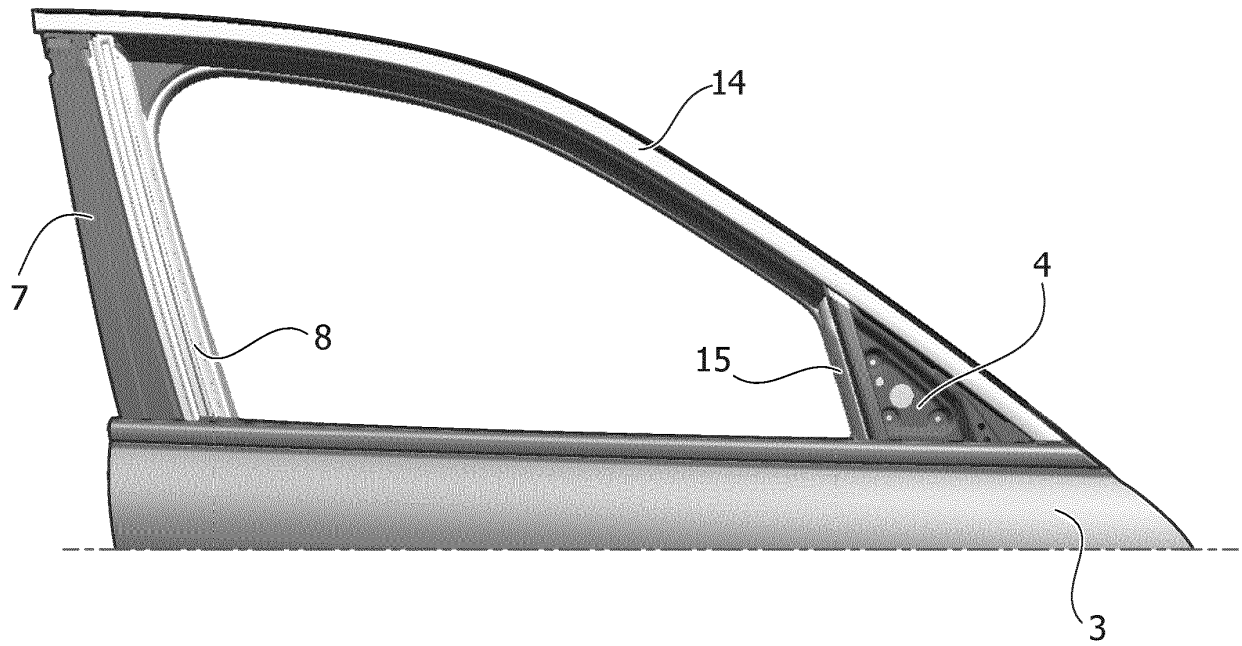


FIG. 19

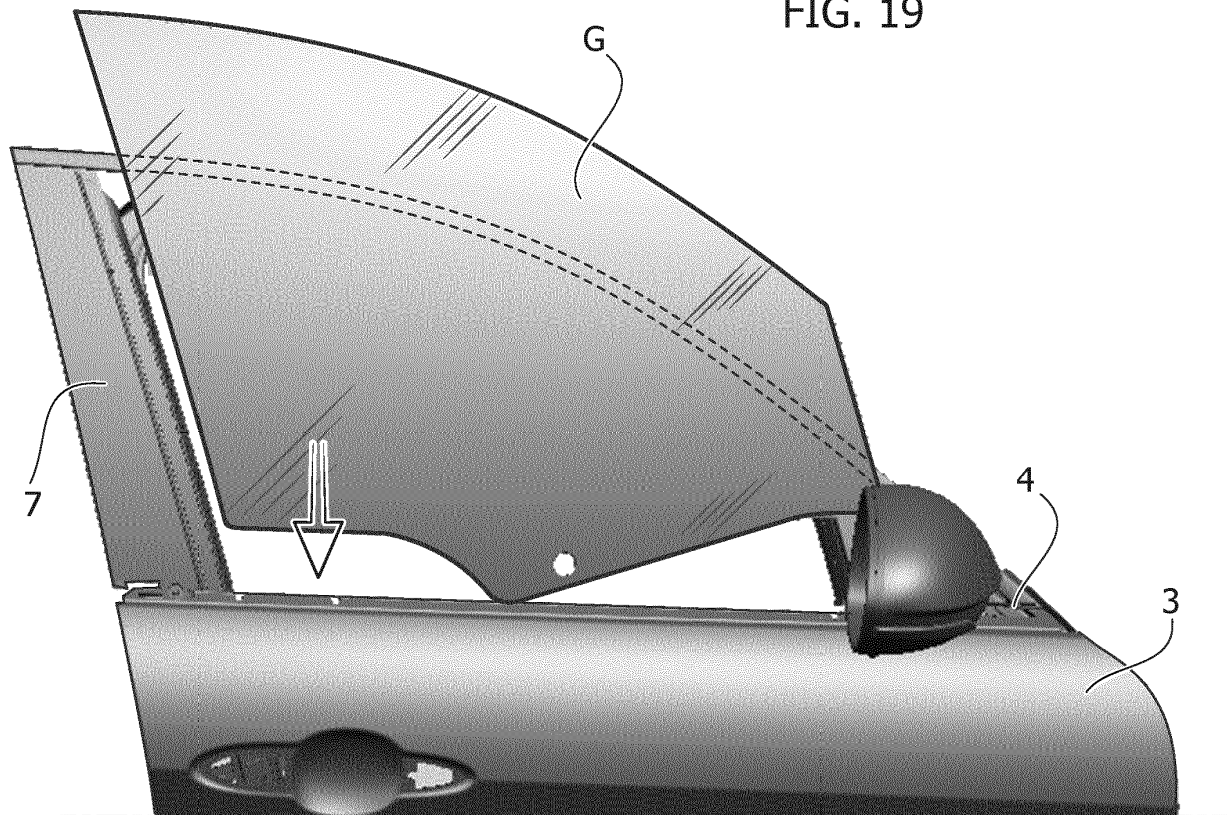
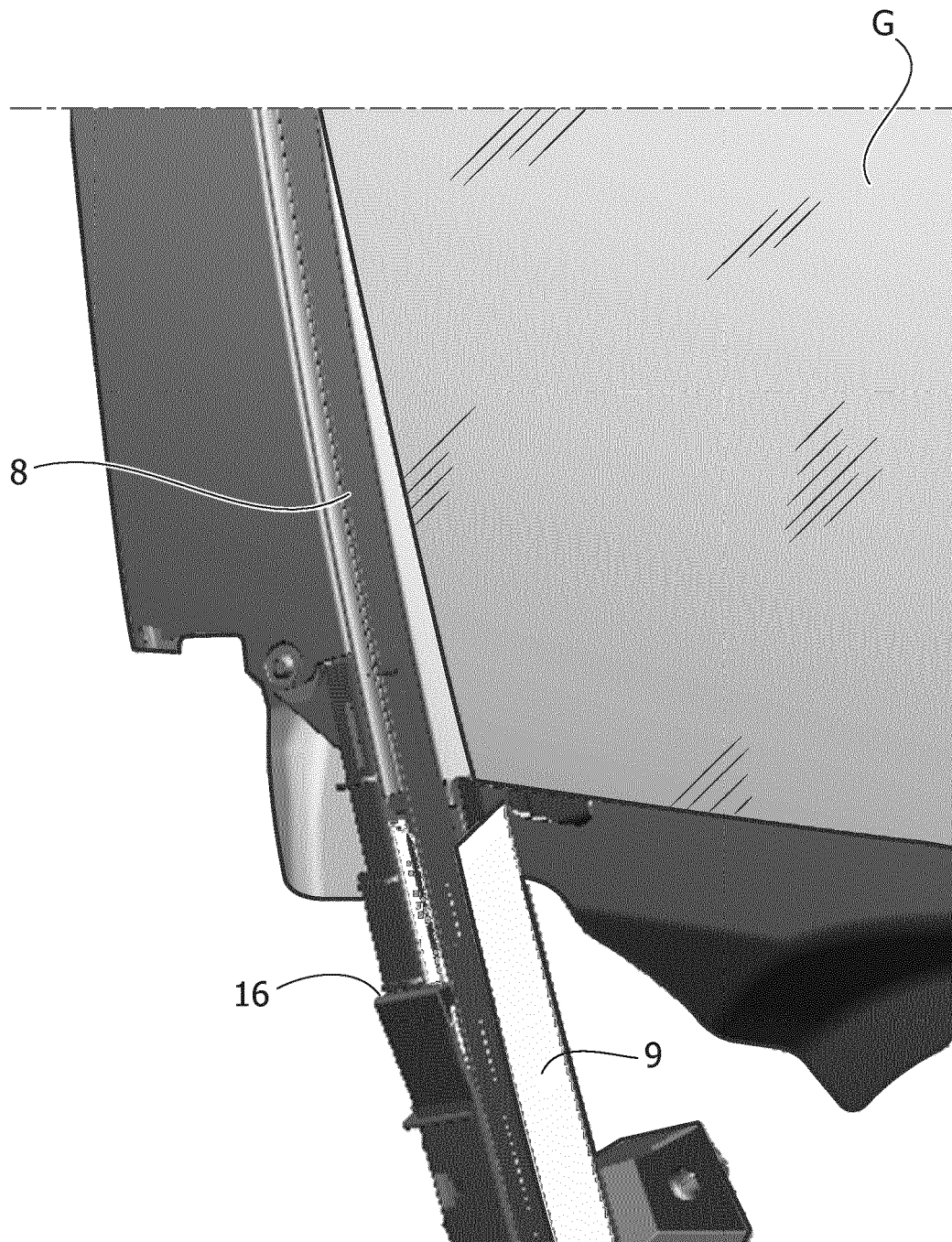


FIG. 20



REFERENCES CITED IN THE DESCRIPTION

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